

NOTES ON THREE SPECIES OF HYLOTOMA.

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Among the papers of the late Benj. D. Walsh, published in the Transactions of the Saint Louis Academy of Science, (7 May 1873, v. 3, pp. 67-68) is a description of the male and female of *Hylotoma dulciaria* Say. His description of the male appears to differ so much from some specimens which have come under my notice that I venture to give a note of the insect as it appears to me.

After describing the female, Walsh gives the following description of the male:—

“♂ differs from ♀ only as follows:—1. The antennae are $\frac{2}{3}$ as long as the body, the usual hairs on the last joint nearly as long as wide. 2. The tegulae and the entire thorax above and below, except the cenchri which are whitish and the basal plates which are luteo-rufous, are blue black. 3. The abdomen is immaculate. 4. The wings are several shades paler, but there is an obvious darker cloud extending from the base of the stigma to the usual dark dot in the disk of the 2d submarginal, which cloud exists in ♂ [♀] also, but is not noticed from the rest of the wing being equally clouded. Length ♂ .27 inch. Front wing ♂ .27 inch.”

Mr. Walsh's description was from a single specimen and it differs so much, by its black thorax and “immaculate” abdomen (the thorax and abdomen of the female being of a shining yellowish-red color), from the specimens taken

by me that it seems hardly possible that it can belong to this species.

H. dulciaria Say, is a synonym of *H. pectoralis* Leach, in Cresson's last revision of the hymenoptera, and upon the male I offer the following note.

Hylotoma pectoralis Leach (= *H. dulciaria* Say).—Male. Head shining black, antennae black and longer than those of female; ciliae beneath appearing either black or rusty colored. Thorax yellowish red above and around the collar; shining blue black beneath and with a yellowish red spot below the fore wings, on the pectus or breast on each side. Legs blue black, the anterior pair having the tarsi, tibiae and the extreme tips of the femora of a light reddish color. Abdomen shining bright blue black. Wings light smoky brown on inner and clear on outer or apical portion. An irregular smoky brown blotch extends from the basal end of the stigma to the third submarginal cell in the centre of which is a minute dot. Expanse of wings 15 mm. Length of body 7 to 8 mm.

Out of four specimens examined, two have four submarginal (or cubital) cells in the anterior wings, corresponding to the characters of the genus. The other two specimens have only three submarginal cells, the second submarginal nervure being absent. Described from four specimens bred with a larger number of females in July, 1889, from larvae found in the previous summer feeding on the foliage of *Betula alba* in the Arnold Arboretum at Jamaica Plain, Mass.

The following observations have been made of the larvae of two species of *Hylotoma*.

Hylotoma scapularis Klug. — The full-grown larvae have a pretty general resemblance to those of *H. pectoralis* Leach (= *H. dulciaria* Say),* and are about 18 mm. long. Head light orange yellow, body somewhat flattish and light yellowish green in color. There are six distinct rows of small closely adjoining black spots on the upper portion of the body extending from the head to the anal segment. On each of the fleshy projections on the sides of the segments, except the last, there is an oblong dark spot; but these spots above the two posterior pair of true legs appear as two large somewhat triangular black blotches. Above the anal segment there is a large oval shaped black spot. The legs are black on the outer side, and the prolegs are marked by a dark brown blotch on the outer side. The black legs and black blotch on the anal segment are the chief marks which distinguish this larva from that of *H. pectoralis* in which the legs and anal segment are yellowish. The cocoons are of a dirty white or light brown color and average about 12 mm. in length. They are composed of two walls, the inner being closely, and the outer loosely spun.

The eggs are deposited along the margins of the leaves of the common American elm (*Ulmus Americana*) upon which the larvae feed. Young larvae were found early in Au-

gust and those observed attained full growth about the end of the month. Two males and many females were raised from these about the first of July following.

Hylotoma McLeayi Leach. Full grown larva from 15 to 18 mm. long. Head black. Body flattish; pale yellowish green, with four distinct lines of black spots along the back extending from the head to the anal segment; and with some minute, less regularly arranged spots or dots along the sides above the fleshy projections which characterize larvae of this genus. Each fleshy projection bears a long narrow black spot. The anal segment is surmounted by a large irregular oval black blotch and is brown above the anus. The legs are dark brown or black on the outer base and have a heavy black blotch at the base. The prolegs are marked on their outer side by a somewhat triangular, black or very dark brown spot. The cocoon is double walled, the outer wall being loosely woven and it is dull white or pale brown in color, and is from 12-14 mm. in length.

The larvae were found in considerable numbers in the month of August feeding upon the foliage of common choke-cherry (*Prunus Virginiana*) at Jamaica Plain, Mass. From these larvae a number of female imagoes were bred in the latter part of the month of May following.

A NOVEL DIAGRAMMATIC REPRESENTATION OF THE ORDERS OF INSECTS.†

The difficulty of representing satisfactorily by any linear arrangement the relations of the orders to each other and to Thysanura has compelled us to give diagrams I-III. Diagram II [pl.

1] shows by parallel bars rising above the circular plate, which represents the surface of the earth, the sixteen orders of insects as they exist to-day, and below this plate the different orders are ar-

*See T. W. Fyles in Canadian entomologist, v. 18, p. 38; v. 19, p. 59.

† Reprinted from Guides for Science Teaching, No. VIII. Insecta. By Alpheus Hyatt and J. M. Arms.